

CLAIMS

1. An apparatus for supplying an oxygen-rich gas, comprising:

5 an oxygen-rich gas generating device for generating an oxygen-rich gas;

a transfer line for transferring the oxygen-rich gas discharged from the oxygen-rich gas generating device;

10 a condensate removal unit for removing condensates occurring in the transfer line from the oxygen-rich gas, the condensate removal unit having an inlet, an outlet and a drain port, the transfer line being connected to the inlet of the condensate removal unit;

15 a discharge line for discharging the oxygen-rich gas to a desired place, the discharging line being connected to the outlet of the condensate removal unit.

2. The apparatus of claim 1, wherein the condensate removal unit has a funnel-shaped lower portion and the 20 drain port is provided at the funnel-shaped lower portion.

3. The apparatus of claim 1, wherein the drain port is closed by a valve.

25 4. The apparatus of claim 3, wherein the valve is selectively opened to discharge condensates collected in the condensate removal unit by an electric power applied thereto.

30 5. The apparatus of claim 4, further comprising a controller for controlling operations of the oxygen-rich gas generating device and the valve.

35 6. The apparatus of claim 5, further comprising a control panel for manipulating the controller, the control panel having an oxygen-rich gas discharge nozzle communicating

with the discharge line.

7. The apparatus of claim 6, wherein the condensate removal unit is disposed near the oxygen-rich gas discharge nozzle.
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8. The apparatus of claim 1, wherein the condensate removal unit contains a first moisture filter having a multiplicity of pores for filtering off moisture in the oxygen-rich gas in a flowing path of the oxygen-rich gas.
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9. The apparatus of claim 8, wherein the condensate removal unit further contains a second moisture filter having a multiplicity of pores for filtering off moisture in the oxygen-rich gas in a flowing path of the oxygen-rich gas, the first and the second moisture filter being located near the inlet and the outlet of the condensate removal unit, respectively.
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20 10. The apparatus of claim 8, wherein the first and the second moisture filter are each formed by sintering polyethylene powder.

25 11. The apparatus of claim 9, wherein the pores of the first moisture filter have a sufficient size to allow condensates to pass therethrough into the condensate removal unit, and those of the second moisture filter have a sufficient size to prevent condensates from passing therethrough.
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12. The apparatus of claim 11, wherein the adsorbent is comprised of alumina particles and is held in place by a pair of supports with openings whose size is less than that of the alumina particles.
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13. The apparatus of claim 1, wherein the transfer line

has a length of 1 m or greater.

14. An apparatus for supplying an oxygen-rich gas, comprising:

5 an oxygen-rich gas generating device for generating an oxygen-rich gas;

 a transfer line for transferring the oxygen-rich gas from the oxygen-rich gas generating device;

10 a first housing having a first inlet, a first outlet and a drain port, the transfer line being connected to the first inlet of the first housing;

 a second housing having a second inlet and a second outlet, the second housing communicating with the first housing through a connection line both ends of which are connected to the first outlet and the second inlet, respectively;

15 a discharge line for discharging the oxygen-rich gas to a desired place, the discharging line being connected to the outlet of the second housing.

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15. The apparatus of claim 14, wherein the first housing contains a first moisture filter for filtering off moisture in the oxygen-rich gas in a flowing path of the oxygen-rich gas and/or the second housing contains a second moisture filter for filtering off moisture in the oxygen-rich gas in a flowing path of the oxygen-rich gas, each of the first and the second moisture filter having a multiplicity of pores.

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16. The apparatus of claim 15, wherein the first and the second moisture filter are each formed by sintering polyethylene powder.

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17. The apparatus of claim 15, wherein the pores of the first moisture filter have a sufficient size to allow condensates to pass therethrough into the first housing,

and those of the second moisture filter have a sufficient size to prevent condensates from passing therethrough.

18. The apparatus of claim 15, wherein the second housing
5 further contains an adsorbent for adsorbing moisture in the oxygen-rich gas in a flow path of the oxygen-rich gas.

19. The apparatus of claim 14, wherein the inlet of the second housing is located at a higher level than the outlet
10 of the first housing so that condensates in the second housing gravitationally flow through the connection line into the first housing.

20. The apparatus of claim 8, wherein the first moisture
15 filter is a hollow fiber membrane filter or a flat sheet membrane filter.

21. The apparatus of claim 9, wherein each of the first and the second moisture filter is a hollow fiber membrane
20 filter or a flat sheet membrane filter.

22. The apparatus of claim 15, wherein each of the first and the second moisture filter is a hollow fiber membrane filter or a flat sheet membrane filter.